

## Abstract of the Disclosure

### RUBBER COMPOSITION CONTAINING RESINOUS NANOPARTICLE

5           This invention relates to a tread rubber composition for tires with the addition of crosslinked resinous nanoparticles having a high glass transition temperature ( $T_g$ ) into elastomeric base polymers. The invention demonstrates greatly improved handling performance without deteriorating controllability and stability during high-speed running. The present invention discloses a rubber composition comprising: (1) a rubbery  
10           polymer and (2) from 1 phr to 30 phr of pre-crosslinked polymer particles, wherein the pre-crosslinked polymer particles have a particle size which is within the range of 30 nm to 500 nm, wherein the pre-crosslinked polymer is comprised of repeat units that are derived from at least one monomer selected from the group consisting of acrylate monomers, vinyl aromatic monomers, acrylonitrile monomer, and vinyl halide  
15           monomers, and wherein the pre-crosslinked polymer has a glass transition temperature which is within the range of 30°C to 200°C.